

ABSTRACT

A projection display system has at least one light-recycling illumination system and at least one imaging light modulator. The light-recycling illumination system includes a light source that is enclosed within a light-recycling envelope. The light source is a light-emitting diode that emits light, and a fraction of that light will exit the light-recycling envelope through an aperture. The light-recycling envelope recycles a portion of the light emitted by the light source back to the light source in order to enhance the luminance of the light exiting the aperture. The fraction of the light that exits the aperture is partially collimated and is directed to the imaging light modulator. The imaging light modulator spatially modulates the partially collimated light to form an image.